

### ABSTRACT OF THE DISCLOSURE

A method of and an apparatus for coating a substrate with a polymer solution to produce a film of uniform thickness, includes mounting the substrate inside an enclosed housing and passing a control gas, which may be  
5 a solvent vapor-bearing gas into the housing through an inlet. The polymer solution is deposited onto the surface of the substrate in the housing and the substrate is then spun. The control gas and any solvent vapor and particulate contaminants suspended in the control gas are exhausted from the housing through an outlet and the solvent vapor concentration is controlled by  
10 controlling the temperature of the housing and the solvent from which the solvent vapor-bearing gas is produced. Instead the concentration can be controlled by mixing gases having different solvent concentrations. The humidity of the gas may also be controlled.